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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,585	12/15/2003	Michael Bock	EFFERT-1'	1385

23599 7590 01/12/2007  
MILLEN, WHITE, ZELANO & BRANIGAN, P.C.  
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EXAMINER
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RAMIREZ, JOHN FERNANDO

ART UNIT	PAPER NUMBER
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3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/734,585

Applicant(s)

BOCK ET AL.

Examiner

John F. Ramirez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 1-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-15 are objected to because of the following informalities:

Regarding claims 1-15, the phrase "such that" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 1-15 recites the limitations "the gradient moment" and "the gradient zero order moment" in the last 6 lines of the claim. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 9 are directed to calculate the gradient echo pulse sequence by spatial coding in each direction of space and lacks clarity as to how this is calculated and therefore does not further limit the system. Such calculation is vague and indefinite, correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Foo et al. (US 6,408,201).

Concerning to Claims 1-15, Foo et al. discloses a nuclear spin tomography

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device to obtain data for locally-resolved imaging of the magnetic resonance behavior of the atomic nuclei in a selected field of view in a body (see abstract, col. 4, lines 13-33, col. 1 lines 59-67, col. 2, lines 1-23) the device being made and programmed such that the body can be exposed by the device to high frequency and magnetic field gradient echo pulse sequences that produce magnetization in a body such that the magnetization of a medium that is flowing in at least one direction in space in the body can be attenuated by dephasing the spins of the atomic nuclei in the medium (see abstract, col. 2, lines 24-52), wherein the gradient echo pulse sequences are calculated such that an additional gradient contribution in each direction in spatial in which the medium is flowing in the body is added to a gradient echo pulse sequence needed for spatial coding in each direction of space without influencing the space coding (col. 3, lines 31-50), the gradient moment of the first order  $M_1$  of the respective gradient echo pulse sequence being maximized by setting the gradient field intensity and the slew rate to a respective maximum value (col. 3, line 31- col. 4, line 60), and an MR contrast medium that is taken up by the body, magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins by gradient moments of order  $i$   $M_i(t)$  being maximized in this direction in space according to the following relation:

$$M_i(t) = \gamma \cdot \int_0^t G(t') \cdot t'^i dt'$$

whereby,  $i$  is an integer greater than zero,  $\gamma$  is the gyromagnetic ratio of the atomic nuclei,  $G(t')$  is a time-dependent gradient field intensity in this direction in space and  $t$  is

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the time interval that has passed since the emission of a high frequency pulse for excitation of the atomic nuclei (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50), wherein the magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins in that gradient moments of the first order  $M_1(t)$  are maximized in this direction in space according to the following relation (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50):

$$M_1(t) = \gamma \cdot \int_0^t G(t') \cdot t' dt'$$

, wherein gradient echo pulse sequences can be produced in the respective directions in space by inserting the flow dephasing gradient pulses into flow-compensated imaging gradient echo pulse sequences (col. 3, lines 31-49), wherein  $M_1$  satisfies the following relation:  $M_1(t; G_{bipolar}, tramp, t_{plateau}, t_{sep}) = \gamma \cdot G_{bipolar} \cdot (tramp + t_{plateau}) \cdot (2tramp + t_{plateau} + t_{sep})$  (Figure 4, col. 7, line 61 – col. 9, line 18), wherein the device is a static magnet, gradient devices for producing gradient pulses in three directions in space that are orthogonal to one another (col. 7, lines 60-67), a transmission device for producing high frequency signals, a receiving device for high frequency signals, a device for triggering gradient devices and the transmission device, an evaluation device, and a display device (Fig. 1), wherein the MR contrast medium can be administered intravenously to a human or animal body (col. 7, lines 24-34), wherein the MR contrast medium is lymph-passable and/or plaque-passable (Abstract).

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFR  
12/28/06

  
ELENI MANTIS MERCADER  
SUPERVISORY PATENT EXAMINER